Complete Summary

GUIDELINE TITLE

Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics. Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. Pediatrics 2000 May;105(5):1158-70. [60 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Attention-deficit/hyperactivity disorder

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Family Practice
Neurology
Pediatrics
Psychiatry
Psychology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians

GUIDELINE OBJECTIVE(S)

To provide recommendations for the assessment and diagnosis of school-aged children with attention-deficit/hyperactivity disorder (ADHD)

TARGET POPULATION

Children 6 to 12 years old who present with inattention, hyperactivity, impulsivity, academic underachievement, or behavioral problems in primary care settings.

Note: This guideline is not intended for children with mental retardation, pervasive developmental disorder, moderate to severe sensory deficits such as visual and hearing impairment, chronic disorders associated with medications that may affect behavior, and those who have experienced child abuse and sexual abuse.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Use of explicit criteria in Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) Note: The Diagnostic and Statistical Manual for Primary Care (DSM-PC), Child and Adolescent Version is considered.
2. Synthesizing information regarding the child's symptoms obtained from
    - parents;
    - school reports;
    - mental health care professionals, if involved; and an
    - interview/examination of the child.

    Note: The use of attention-deficit/hyperactivity disorder (ADHD)-specific and global, nonspecific questionnaires and rating scales are considered.

3. Search for co-existing conditions

    Note: medical screening tests, such as electroencephalography, lead concentration levels, and thyroid hormone level are considered but not recommended.

MAJOR OUTCOMES CONSIDERED

Behavioral Screening Tests

- Accuracy for attention-deficit/hyperactivity disorder (ADHD) (for ADHD-targeted checklists only)
    - Sensitivity, specificity, positive predictive value
- Accuracy for referral population (for broad-band checklists only)

- Effect size for discriminating referred from non-referred samples

Medical Screening Tests

- Prevalence of abnormal findings

Green M, Wong M. Atkins D, et al. Diagnosis of Attention-Deficit/Hyperactivity Disorder. Technical Review No. 3 (Prepared by Technical Resources International, Inc. under contract No. 290-94-2024. AHCPR Publication No. 99-0050. Rockville (MD): Agency for Health Care Policy and Research. August 1999.

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Technical Resources International report focused on 4 specific areas for the literature review: the prevalence of attention-deficit/hyperactivity disorder (ADHD) among children 6 to 12 years of age in the general population and the coexisting conditions that may occur with ADHD; the prevalence of ADHD among children in primary care settings and the coexisting conditions that may occur; the accuracy of various screening methods for diagnosis; and the prevalence of abnormal findings on commonly used medical screening tests. The literature search was conducted using Medline and Psyc INFO databases, references from review articles, rating scale manuals, and articles identified by the subcommittee. Only articles published in English between 1980 and 1997 were included. The study population was limited to children 6 to 12 years of age, and only studies using general, unselected populations in communities, schools, or the primary clinical setting were used. Data on screening tests were taken from studies conducted in any setting.

NUMBER OF SOURCE DOCUMENTS

4000 citations were identified; 507 articles and 10 manuals were retrieved; 97 (87 published articles; 10 behavioral scale manuals) documents were accepted.

Green M, Wong M. Atkins D, et al. Diagnosis of Attention-Deficit/Hyperactivity Disorder. Technical Review No. 3 (Prepared by Technical Resources International, Inc. under contract No. 290-94-2024. AHCPR Publication No. 99-0050. Rockville (MD): Agency for Health Care Policy and Research. August 1999.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Articles accepted for analysis were abstracted twice by trained personnel and a clinical specialist. Both abstracts for each article were compared and differences between them resolved. A multiple logistic regression model with random effects was used to analyze simultaneously for age, gender, diagnostic tool, and setting using EGRET software. Results were presented in evidence tables and published in the final evidence report (see citation in companion documents field).

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strong recommendations were based on high-quality scientific evidence, or, in the absence of high-quality data, strong expert consensus.

Fair and weak recommendations were based on lesser quality or limited data and expert consensus.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The draft practice guideline underwent extensive peer review by committees and sections within the American Academy of Pediatrics, by numerous outside organizations, and by other individuals identified by the subcommittee. Liaisons to the subcommittee also were invited to distribute the draft to entities within their

organizations. The resulting comments were compiled and reviewed by the subcommittee co-chairpersons, and relevant changes were incorporated into the draft based on recommendations from peer reviewers.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Excerpted by the National Guideline Clearinghouse:

RECOMMENDATION 1: In a child 6 to 12 years old who presents with inattention, hyperactivity, impulsivity, academic underachievement, or behavior problems, primary care clinicians should initiate an evaluation for attention-deficit/hyperactivity disorder (ADHD) (strength of evidence: good; strength of recommendation: strong).

Presentations of ADHD in clinical practice vary. Symptoms may not be apparent in a structured clinical setting that is free from the demands and distraction of the home and school. The following general questions may be useful at all visits for school-aged children to heighten attention about ADHD and as an initial screening for school performance:

1. How is your child doing in school?
2. Are there any problems with learning that you or the teacher has seen?
3. Is your child happy in school?
4. Are you concerned with any behavioral problems in school, at home, or when your child is playing with friends?
5. Is your child having problems completing classwork or homework?

   Alternatively, a previsit questionnaire may be sent to parents or given while the family is waiting in the reception area.

RECOMMENDATION 2: The diagnosis of ADHD requires that a child meet Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria (strength of evidence: good; strength of recommendation: strong).

The DSM-IV criteria define three subtypes of ADHD (see Table 1 in the guideline document for specific inattention and hyperactive-impulsive items):

- ADHD primarily of the inattentive type (ADHD/I, meeting at least 6 of 9 inattention behaviors)
- ADHD primarily of the hyperactive-impulsive type (ADHD/HI, meeting at least 6 of 9 hyperactive-impulsive behaviors)
- ADHD combined type (ADHD/C, meeting at least 6 of 9 behaviors in both the inattention and hyperactive-impulsive lists)

Children who meet diagnostic criteria for the behavioral symptoms of ADHD but who demonstrate no functional impairment do not meet the diagnostic criteria for ADHD. The symptoms of ADHD should be present in 2 or more settings (eg, at home and in school), and the behaviors must adversely affect functioning in school or in a social situation.

RECOMMENDATION 3: The assessment of ADHD requires evidence directly obtained from parents or caregivers regarding the core symptoms of ADHD in various settings, the age of onset, duration of symptoms, and degree of functional impairment (strength of evidence: good; strength of recommendation: strong).

Behavior symptoms may be obtained from parents or guardians using one or more methods, including open-ended questions (eg, "What are your concerns about your child's behavior in school?"), focused questions about specific behaviors, semi-structured interview schedules, questionnaires, and rating scales. Clinicians who obtain information from open-ended or focused questions must obtain and record the relevant behaviors of inattention, hyperactivity, and impulsivity from the DSM-IV. The use of global clinical impressions or general descriptions within the domains of attention and activity is insufficient to diagnose ADHD.

RECOMMENDATION 3A: Use of ADHD-specific rating scales is a clinical option when evaluating children for ADHD (strength of evidence: strong; strength of recommendation: strong).

RECOMMENDATION 3B: Use of broadband scales is not recommended in the diagnosis of children for ADHD, although they may be useful for other purposes (strength of evidence: strong; strength of recommendation: strong).

RECOMMENDATION 4: The assessment of ADHD requires evidence directly obtained from the classroom teacher (or other school professional) regarding the core symptoms of ADHD, the duration of symptoms, the degree of functional impairment, and coexisting conditions. A physician should review any reports from a school-based multidisciplinary evaluation where they exist, which will include assessments from the teacher or other school-based professional (strength of evidence: good; strength of recommendation: strong).

Behavior symptoms may be obtained using one or more methods such as verbal narratives, written narratives, questionnaires, or rating scales. Clinicians who obtain information from narratives or interviews must obtain and record the relevant behaviors of inattention, hyperactivity, and impulsivity from the DSM-IV. The use of global clinical impressions or general descriptions within the diagnosis of attention and activity is insufficient to diagnose ADHD.

RECOMMENDATION 4A: Use of teacher ADHD-specific questionnaires and rating scales is a clinical option when diagnosing children for ADHD (strength of evidence: strong; strength of recommendation: strong).

RECOMMENDATION 4B: Use of teacher global questionnaires and rating scales is not recommended in the diagnosing of children for ADHD, although they may be useful for other purposes (strength of evidence: strong; strength of recommendation: strong).

If a child 6 to 12 years of age routinely spends considerable time in other structured environments such as after-school care centers, additional information about core symptoms can be sought from professionals in those settings, contingent on parental permission. The ADHD-specific questionnaires may be used

to evaluate the child's behavior in these settings. For children who are educated in their homes by parents, evidence of the presence of core behavior symptoms in settings other than the home should be obtained as an essential part of the evaluation.

Frequently there are significant discrepancies between parent and teacher ratings. The finding of a discrepancy between the parents and teachers does not preclude diagnosis of ADHD. A helpful clinical approach for understanding the sources of the discrepancies and whether the child meets DSM-IV criteria is to obtain additional information from other informants, such as former teachers, religious leaders, or coaches.

RECOMMENDATION 5: Evaluation of the child with ADHD should include assessment for coexisting conditions (strength of evidence: strong; strength of recommendation: strong). Conduct disorder and oppositional defiant disorder, mood disorders/depression, anxiety, and learning disabilities are discussed in the guideline document.

RECOMMENDATION 6: Other diagnostic tests are not routinely indicated to establish the diagnosis of ADHD (strength of evidence: strong; strength of recommendation: strong).

Blood lead levels, thyroid testing, brain imaging, and the use of continuous performance tests are discussed in the guideline document.

CLINICAL ALGORITHM(S)

A clinical algorithm for the diagnosis and evaluation of children with attention deficit/hyperactivity disorder is provided in the guideline document.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations contained in the practice guideline are based on the best available data. Where data were lacking, a combination of evidence and expert consensus was used. Strong recommendations were based on high-quality scientific evidence, or, in the absence of high-quality data, strong expert consensus. Fair and weak recommendations were based on lesser quality or limited data and expert consensus. Clinical options were identified as interventions because the subcommittee could not find compelling evidence for or against. These clinical options are interventions that a reasonable health care provider might or might not wish to implement in his or her practice.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Overall, early recognition, assessment, and management of attention-deficit/hyperactivity disorder (ADHD) can redirect the educational and psychosocial development of children with ADHD.

Specifically, the use of explicit criteria, such as the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria, may help to ensure a more accurate diagnosis of ADHD and decrease variation in how the diagnosis of ADHD is made.

POTENTIAL HARMS

None stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This clinical practice guideline is not intended as a sole source of guidance in the evaluation of children with attention-deficit/hyperactivity disorder (ADHD). Rather, it is designed to assist primary care clinicians by providing a framework for diagnostic decision making. It is not intended to replace clinical judgment or to establish a protocol for all children with this condition and may not provide the only appropriate approach to this problem.
- Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria. Given the lack of methods to confirm the diagnosis of ADHD through other means, it is important to recognize the limitations of the DSM-IV definition. Most of the development and testing of DSM-IV has occurred through studies of children seen in psychiatric settings. Much less is known about its use in other populations, such as those seen in general pediatric or family practice settings. Despite the agreement of many professionals working in this field, the DSM-IV criteria remain a consensus without clear empirical data supporting the number of items required for the diagnosis. Current criteria do not take into account gender differences or developmental variations in behavior. Furthermore, the behavioral characteristics specified in the DSM-IV, despite efforts to standardize them, remain subjective and may be interpreted differently by different observers. Continuing research will likely clarify the validity of the DSM-IV criteria (and subsequent modifications) in the diagnosis. These complexities in the diagnosis mean than clinicians using DSM-IV criteria must apply them in the context of their clinical judgment.
- ADHD-specific questionnaires and rating scales. Almost all studies of these scales and checklists have taken place under ideal conditions, i.e., comparing children in referral sites with apparently health children. These instruments may function less well in primary care clinicians' offices than indicated in the tables. In addition, questions on which these rating scales are based are subjective and subject to bias. Thus, their results may convey a false sense of validity and must be interpreted in the context of the overall evaluation of the child. Whether these scales provide additional benefit beyond careful clinical assessment informed by DSM-IV criteria is not known.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation plan is under development.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics. Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. Pediatrics 2000 May;105(5):1158-70. [60 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 May

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics (AAP)

GUIDELINE COMMITTEE

Subcommittee on Attention-Deficit/Hyperactivity Disorder; Committee On Quality Improvement, 1999-2000

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Subcommittee Members: James M. Perrin, MD (Co-chairperson); Martin T. Stein (Co-chairperson); Robert W. Amler, MD; Thomas A. Blondis, MD; Heidi M. Feldman, MD, PhD; Bruce P. Meyer, MD; Bennett A. Shaywitz, MD; Mark L. Wolraich, MD.

Names of Committee Members: Charles J. Homer, MD, MPH (Chairperson); Richard D. Baltz, MD; Gerald B. Hickson, MD; Paul V. Miles, MD; Thomas B. Newman, MD, MPH; Joan E. Shook, MD; William M. Zurhellen, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

AAP Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from AAP, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Green M, Wong M. Atkins D, et al. Diagnosis of Attention-Deficit/Hyperactivity Disorder. Technical Review No. 3 (Prepared by Technical Resources International, Inc. under contract No. 290-94-2024. AHCPR Publication No. 99-0050. Rockville (MD): Agency for Health Care Policy and Research. August 1999.

Print copies: Available from the Agency for Healthcare Quality and Research (AHRQ) (formerly the Agency for Health Care Policy and Research), U.S. Department of Health and Human Services, 21010 East Jefferson Street, Rockville, MD 20852. See the AHRQ Web site for more information.

A related American Academy of Pediatrics guideline is also available:

- Clinical practice guideline: treatment of the school-aged child with attention-deficit/hyperactivity disorder. Pediatrics 2001 Oct;108(4):1033-44.

Electronic copies: Available from the American Academy of Pediatrics (AAP) Web site.

Print copies: Available from AAP, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

PATIENT RESOURCES

The following is available:

- American Academy of Pediatrics (AAP). ADHD and your school-aged child: information for parents. Elk Grove Village (IL): American Academy of Pediatrics, 2001 Oct. 1 p.

Electronic copies: Available in from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from AAP, 141 NW Point Blvd, PO Box 927, Elk Grove Village, IL 60009-0927.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on July 25, 2000. The information was verified by the guideline developer on January 3, 2001.

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